



Amusement park 'Physics Day' lets future scientists play, learn

by [Brett Stone](#), Nuclear Science & Technology communications intern

The future of American science was on display at the recent 20th anniversary of Physics Day, co-sponsored by [Idaho National Laboratory](#) and [Utah State University](#).

Nearly 6,000 elementary, middle school and high school students flooded Lagoon Amusement Park near Salt Lake City to experience real-life physics, science and engineering. Students dropped eggs from the sky, displayed their designs for new theme park rides, measured acceleration on roller-coasters and put robots they had built themselves to the test.

"Robot number eight, robot number eight!" shouted elementary students in bright yellow T-shirts. Surrounding a small, white, wooden maze on the floor of the pavilion, they chanted louder as a shoe-box-sized Lego robot progressed past another obstacle.

Students worked for months preparing for the event, assembling their robots and learning how to program them to autonomously detect and maneuver around obstacles. Even some nearby adults couldn't help but join in the eruption of cheers from the students as the little robot exited the maze.

"I get energized, that's the bottom line," said observer Ali Siahpush, an INL scientist. Siahpush, who's helped organize Physics Day for 19 years, said he loves seeing young students getting so excited and learning in new ways. "These are the future of our country."

Outside, Zach Hawkes, a junior from Hillcrest High School in Idaho Falls, was a little more serious. The "AmmoKnights" robotics team, sponsored by INL and made up of Hawkes and three friends, had just finished round one of the Robotics Grudge Match, and their robot needed a tune-up.

Half a dozen high school teams from Utah and Idaho entered their robots, which were about the size of a large office chair in the competition. The teams battled it out through their robots in the arena, with each robot scooting to scoop up as many balls as it could from the floor, and depositing them into baskets towed behind each of their robot opponents.

"Anything goes," said Tayson Halzer of the Woods Cross High School team as the robots whirled around, bumping into and trying to pin each other in a mad scramble. "It's really cool to get together with all the different teams and share this cool experience."



The AmmoKnights robot in action during the competition.



INL also sponsored a display explaining the radio-isotope thermal generator (nuclear space

"I think it gives them self-esteem, teamwork and problem-solving skills and gives them career choices," said Richard A. Anderson, assistant regional director of [FIRST](#), the organization that oversaw the competition. He said some participants who started out not wanting to go to college have now changed their minds.

Meanwhile, thousands of middle school and high school students participated in other events and competitions across the amusement park. Almost 450 eggs plummeted from the Sky-Ride chairlift as students tested their impact-resistant egg-holding designs in the Sky Drop. Rows of tables were filled with students' models and designs for new theme-park rides based on physics principles. And those with an artistic knack competed to design a new logo for next year's event.

Students also teamed up and put their knowledge to the test in the annual Physics Bowl tournament. Teams of three represented their high schools in a showdown of fastest-finger physics trivia and problem solving. Ryan Couslen, Samuel White and Nathan Barton from Riverton High School in Utah won the championship round and received full-ride four-year scholarships from Utah State University.

Of course, students also took advantage of the balmy temperatures and exhilarating rides. At the double-loop roller-coaster "Colossus," students strapped on accelerometers they had helped to make themselves to measure acceleration and then record the data needed to solve a problem in their workbook.

battery) that NASA used for "It's neat to see the excitement of the kids while they're filling out their papers, comparing their numbers," said Gable **the recent 'New Horizons'** Roth, a USU student who worked as a volunteer at the ride. The workbooks were not required, but made students **mission to Pluto.** who turned them in at the end of the day eligible to win even more prizes.

"It's good for kids to realize that there's relevancy to all this ... it answers the question 'How am I going to use this?'" said Mark Tolman, a teacher from Kaysville Junior High in Utah. He has been bringing his students to Physics Day for 18 years and said he would recommend that other teachers bring their classes as well.

"The development one of these kids might come up with could bless the planet," Tolman said. "It's always going to come back and pay somewhere."

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